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TUMBLING DRUM FOR FUR SOFTENING AND CLEANING MACHINES

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7 Claims. (Cl. 69—23)

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The present invention relates to a novel construction of tumbling drum for use in a fur softening and cleaning machine.

Fur softening and cleaning machines of the type in which the fur article, either in the form of a pelt or of a finished fur coat, is placed within a drum together with a cleaning medium and is agitated in the drum, preferably by rotation of said drum, are well known. One such machine is disclosed and illustrated in Samuel Friedman Patent No. 1,463,075 of July 24, 1923. Such drums are customarily provided with ledges or other inward projections which engage the fur body and, as that body is tumbled in the drum as the drum is rotated, agitate the body and cause the cleaning medium to penetrate between the fur fibres and thus efficiently perform their described cleaning and softening function. While such machines have been extensively used, and have performed their functions adequately, they are subject to the drawback that the agitation of the fur body, and in particular the separation of the individual fur fibres so that the cleaning medium may penetrate to the roots of the fibres, is accomplished relatively inefficiently. As a result, most furs require an extended period of treatment in these machines, and even then the more tightly matted varieties of fur are only partially cleaned. Because of the length of treatment required, the fur is necessarily relatively severely handled and the more fragile pelts are often ripped or torn in the process. Moreover, when finished fur pieces are cleaned in these machines, the strains to which they are subjected in the course of the tumbling often cause damage to the delicate backings, usually of silk, which are secured to the furs.

It is the prime object of the present invention to devise a fur tumbling drum which will achieve a more efficient cleaning and softening action.

Yet another object of the present invention is to devise a tumbling drum which will, by reason of its novel construction, achieve better and more complete cleaning and softening of fur bodies in a shorted period of time than has been possible heretofore, thus reducing the strains to which the furs are subjected and hence minimizing the danger of damage to said furs.

A further object of the present invention is to devise a fur tumbling drum so constructed as to ensure spreading of even the most tightly matter fur fibres, so that the cleaning substance may perform its function efficiently.

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A further object of the present invention is to devise a tumbling drum which couples a brushing action with a tumbling action, thereby increasing the efficiency of the device.

Yet another object is to so mount the brushes in the tumbling drum as to render them readily removable and replaceable.

A still further object is to devise a mounting means for the brushes which will accommodate standard strip type brushes.

Yet another object is to devise a structure in which the bristles of the brushes project upwardly only a short distance, thus protecting the bristles from being broken or crushed.

To the accomplishment of the foregoing objects and such other objects as may hereinafter appear, the present invention relates to the construction of a tumbling drum for use in a fur softening and cleaning machine as defined in the appended claims and as set forth in this specification, taken together with the accompanying drawings, in which:

Fig. 1 is a perspective view of a fur softening and cleaning machine embodying the present invention;

Fig. 2 is a side cross-sectional view of the tumbling drum of the present invention;

Fig. 3 is a front cross-sectional view thereof;

Fig. 4 is a detailed side cross-sectional view, on an enlarged scale, showing the manner of securing the brushing elements to the ledges; and

Fig. 5 is a view similar to Fig. 4 but showing an alternative embodiment.

The fur softening and cleaning machine disclosed in Fig. 1 comprises a casing 2 in which a tumbling barrel or drum generally designated 4 is rotatably mounted, the drum being rotatable about shafts 6 by means of gearing connections generally designated 8 leading to a motor (not shown), the shafts 6 defining the axis of rotation of the drum 4. Details of the construction of such a machine may be found in many prior art patents including Friedman Patent No. 1,463,075 previously referred to.

The drum 4 of the present invention, as here specifically illustrated, comprises a hollow cylindrical wall 10 having disc shaped ends 12 enclosing the sides thereof. Shafts 6 project outwardly from the ends 12, being secured thereto by means of hubs 14, and are suitably mounted in the casing 2 so that the drum 4 is rotatable about the axis defined by the shafts 6. One portion of the cylindrical wall 10 may be provided with a swingable door 16 openable so as to permit the fur body to be cleaned and the cleaning material, usually

in the form of sawdust or the like, to be inserted into or removed from the interior of the drum 4.

The interior of the drum 4 is provided with disc shaped heads 18, preferably of wood, on the sides thereof and inwardly projecting members 20, also preferably of wood, spaced about the interior of the drum 4 and secured in any appropriate manner to the cylindrical wall 10 thereof. In the preferred form here illustrated, these members 20 take the form of ledges substantially parallel to the axis of rotation of the drum 4 and extending substantially along the entire width of the interior thereof. Brushes 22 are secured to the members 20 so as to constitute extensions thereof, said brushes aiding in agitating and cleaning the fur, as will become apparent hereafter.

In the preferred form, disclosed in Figs. 2 and 3, and particularly in Fig. 4, the brushes 22 are mounted on the sides of the members 20 so as to project thereabove only a short distance. This serves to protect the bristles of the brushes and prevent them from becoming broken or crushed. To that end, a housing 24 is secured to the member 20 as by means of the screw 26, this housing having channels 28 formed therein, one on each side of the member 20. The channels 28 are so shaped as to permit standard strip brushes comprising bristles secured within a casing 30 to be freely inserted therein. Thereafter, a snap cover 32 is fittable over that part of the housing 24 which encompasses the top of the member 20, the housing being provided with outwardly curved portions 34 to cooperate with the cover 32. When the cover 32 is in position, the top of the channels 28 is so obstructed that the brushes 22 cannot be removed therefrom. The cover 32 extends completely over the head of the screw 26, thus protecting the fur bodies to be treated in the drum 4 by making it impossible for the fibres thereof to become entangled with the head of the screw 26.

As disclosed in Fig. 5, illustrating an alternative embodiment, the brushes 22 are permanently mounted in channel shaped metal members 36 so shaped that the channeled portion 37 thereof fits over the top of the inwardly projecting members 20 and pins 38 are passable through the elements 20 and 36 so as to secure the same together. If desired, these pins may be in the form of headed screws having nuts 40 receivable on the projecting ends thereof so that the brushes 22 may be removable from and easily replaced on the ledges 20.

In operation, the fur pieces to be cleaned and softened, either in the form of fur pelts or semi-finished or finished articles of clothing, are inserted into the interior of the drum 4 via the door 16 and a quantity of sawdust or other suitable cleaning material is also placed therein. The door 16 is closed, a suitable latch (not shown) being provided to secure said door in its closed position, and the drum 4 is rotated. The fur body and the sawdust or other cleaning material is tumbled in familiar fashion within the drum 4 as it rotates, the flexing of the fur piece, as it is brought in contact and rests upon the inwardly projecting members 20, facilitating the penetration of the cleaning material between the fur fibres.

The brushes 22 perform a dual function. When the fur piece falls upon them, the bristles of the brushes 22 insinuate themselves between the individual fur fibres, thus spreading the fibres and permitting the cleaning substance to penetrate to the roots of the fibres. In addition, when the fur body is carried to a raised position by the brushes 22 as the drum 4 rotates, the fur body will tend to slide backward, and the interengagement between the bristles of the brushes 22 and the fur fibres will cause a further spreading of those fibres, thus increasing the effectiveness of the cleaning material. As the fur body actually slides backwardly, the brushes 22 will brush, and thus spread, a considerable portion of the fur fibres, thereby rendering themselves effective over an area on the fur piece considerably greater than their own area.

Because of the action of the brushes 22, the fur fibres are worked and flexed, and the cleaning material is permitted to penetrate between those fibres, to a far greater extent and in a much shorter time than is possible without the use of the brushes 22. As a result, the tumbling operation need not be carried on for as long a time as has previously been deemed necessary, and hence the possibility of damage to the fur piece during the cleaning and softening operation is materially decreased. In addition, fur pieces having closely matted fibres are cleaned and softened to an extent heretofore unrealized.

By reason of the construction here disclosed, when the bristles of the brushes 22 become softened or worn, the brushes 22 may very easily be replaced merely by removing the cover 32 and then replacing the standard strip brush 22 with another, in the form illustrated in Figs. 2 through 4, or by removing the pins 38 in the embodiment of Fig. 5 and then sliding the channeled members 36 off the inwardly projecting ledges 20. Because of this easy replaceability, it is also possible to have on hand a supply of brushes of varying stiffnesses so that soft brushes may be used with soft furs and harder brushes may be used with closely matted furs, thus eliminating the possibility that brushes 22 of a stiffness sufficient to be effective on closely matted furs might scratch or otherwise damage softer or more delicate articles.

The preferred embodiment, illustrated in Figs. 2 through 4, has the additional advantage of permitting the employment of standard strip brushes which may be procured on the open market, whereas the embodiment of Fig. 4 requires a special brush construction in which the brushes 22 are secured to a special channeled member 36. In addition, the embodiment of Figs. 2 through 4 has the advantage of providing two sets of brushes per ledge 20 instead of one, and furthermore permits the use of long brushes the bristles of which extend upwardly beyond the ledge 20 only a short distance, thus preventing the bristles of the brushes from being broken or crushed.

The advantage of my invention will in the main be apparent from the preceding discussion. While only two embodiments of that invention have been here described, it will be understood that many modifications may be made therein without departing from the spirit of the invention as defined in the following claims.

I claim:

1. In a fur softening and cleaning machine, a tumbling drum comprising a rotatable hollow body, a plurality of inwardly projecting members therein, and brushes mounted on the side of said members so as to project up thereabove, said brushes aiding in the agitating of the fur to be cleaned.

2. In a fur softening and cleaning machine, a tumbling drum comprising a rotatable hollow body, a plurality of inwardly projecting members

therein, said members having a housing secured thereto, said housing having a channel formed therein, brushes receivable in said channel, and means for securing said brushes in said channel, said brushes aiding in the agitating of the fur to be cleaned.

3. In a fur softening and cleaning machine, a tumbling drum comprising a rotatable hollow body, a plurality of inwardly projecting members therein, said members having a housing secured thereto, said housing having a channel formed therein on the side of said members, brushes receivable in said channel so as to project up above said members, and means for securing said brushes in said channel, said brushes aiding in the agitating of the fur to be cleaned.

4. In a fur softening and cleaning machine, a tumbling drum comprising a rotatable hollow body, a plurality of inwardly projecting members therein, each of said members having a housing fixedly secured thereto, said housing having a channel formed therein on the side of said member, brushes removably receivable in said channel so as to project up above said members, and a cover removably fittable to said housing so as to at least partially close the top of said channel and thus secure said brushes therein, said brushes aiding in the agitating of the fur to be cleaned.

5. In a fur softening and cleaning machine, a tumbling drum comprising a rotatable hollow body, a plurality of inwardly projecting members therein, each of said members having a housing fixedly secured thereto, said housing having a pair of channels formed therein, one

on each side of said member, brushes removably receivable in said channels so as to project up above said members, and a cover removably fittable to said housing so as to at least partially close the top of each of said channels and thus secure said brushes therein, said brushes aiding in the agitating of the fur to be cleaned.

6. In a fur softening and cleaning machine, a tumbling drum comprising a rotatable hollow body, a plurality of inwardly projecting members therein, a housing secured to said members, said housing having a channel formed therein, and strip brushes received within said channel so as to project above said housing, said brushes aiding in the agitating of the fur to be cleaned.

7. In a fur softening and cleaning machine, a tumbling drum comprising a rotatable hollow body, a plurality of inwardly projecting members therein, a housing secured to said members, said housing having a channel formed therein, brushes received within said channel so as to project above said housing, and a cover removably fittable to said housing so as to partially close the top of said channel and thus secure said brushes therein, said brushes aiding in the agitating of the fur to be cleaned.

HAROLD S. FRIEDMAN.

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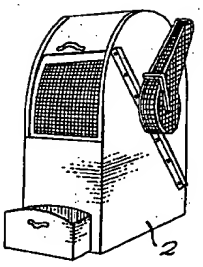

Fig. 1

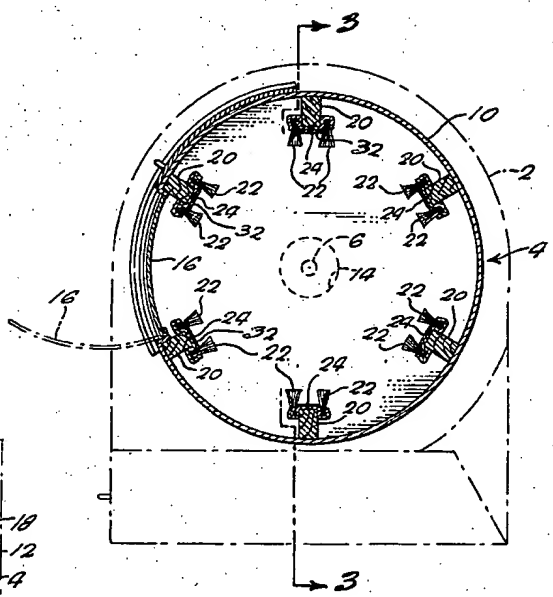

Fig. 2

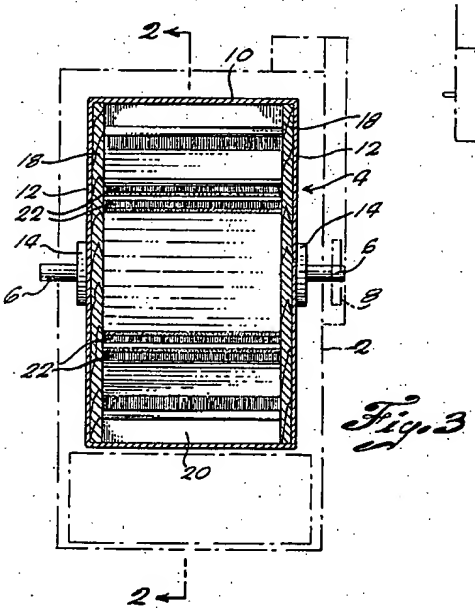

Fig. 3

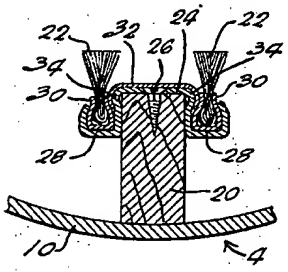

Fig. 4

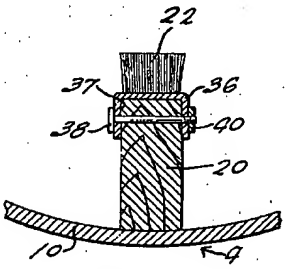

Fig. 5

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